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# Installation guide: preface

This document covers matter of adjustment of “Intellect” system that gives opportunity of utilizing of access control panels together with other hardware and software solutions used in the system. Reader is supposed to already intoduced with installation and user manuals of adjusted control panels (installation and user manuals are supplied).

RS-232 interface (serial port) is used for connection of “Golden Gate” access control systems to computer. Hardware support is provided for the following access control panels of “Integrated Technical Vision” manufacture: DLK642, F18 и F16 (hereinafter «DLK control panels»). To use RS-485 interfacing with control panels, it is necessary to provide a NTC-LNET interface converter with built-in reader specially programmed for joint operation with “Intellect” system. By means of NTC-LNET signal strength of RS-232 and RS-485 buses are interchanged. One output of converter is connected directly to PC COM-port, the other is connected to bus of control panels.

Before creating “DLK” control panels’ branch it is necessary to register GGPMngr.exe COM-server (the registration is produced during “Intellect” system installation). Do it manually using “GGPMngr.exe/regserver” command.

# Common structure of DLK modules integration

Structure of objects’ interconnection for uploading of “DLK” control panels and interaction with objects of “Intellect” system is reflected on Fig. 1 and Fig. 2.

## *Uploading of control panel*

«DLK» integration modules interact with standard access objects existing in “Intellect” system; corresponding necessary information is received from settings of these objects during uploading of control panels.

### Programming tab

Dates of holidays are loaded from “General settings” section. Later they will be taken into account, if time zones have time intervals with holidays included (refer to “Time zone” section).

“Time zone” section serves for specifying of schedules. Set of time intervals assigns schedule according to which access is granted.

“Access levels” section serves as connecting-link between schedules, doors and users. Access level assigns rule of access to particular door according to indicated schedules, and then created access level can be assigned to user or department.

### Users tab

This section purposes for adjusting of access persons. For the purpose of convenience users are divided into departments, specified access level of department may be used by each user of the department (“General” access level is specified for user).

Control panel generates table of used cards from settings of “User” objects, borrowing the following data: “Permanent card”, “Temporary card” + “Valid till …”, “PIN-code” and “User blocked” flag.

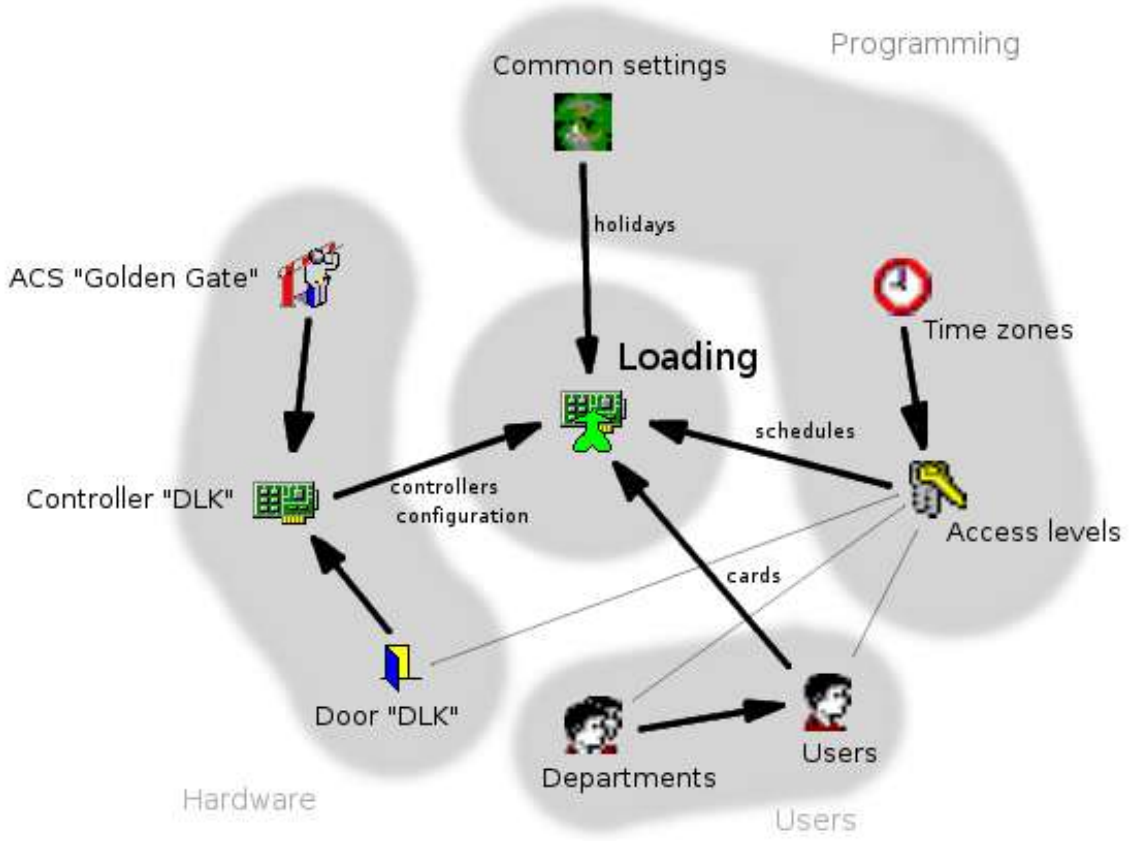



*Fig. 1 Common structure of DLK modules integration - Loading*

"Object code" field is not used directly, but it will be added to beginning of card code (permanent or temporary, if they are set). Length of object code must coincide with "Object code length" field in "Golden Gate" ACS settings for the possibility of back reconversion of full card code into twain (object code and card code), when card events arise. If the lengths do not coincide reconversion will not cast to original data, and "Intellect" system will not be able to identify card user, object code and card code will be indicated in event instead of user name. Length of full card code (object code length + card code length) must coincide with length of cards identificators of types used for access (Wiegand26/Wiegand42 type of cards is specified in "Golden Gate" ACS settings), that is 6 hexadecimal digits for Wiegand26 and 10 digits for Wiegand42.

Maximum length of PIN-code is six decimal numbers, but code itself may be shorter. PIN-code supplements identification of user by card: if PIN-code field is marked, control panel waits for PIN entering after card (temporary or permanent) presentation. If "User blocked" flag is set, card, either temporary or permanent, will be blocked.

For providing access user should necessarily have either permanent or temporary card, otherwise user adjustment will be senseless.

### Hardware tab

Integration modules introduce several specific new objects in objects list. Creation and adjustment of integration modules is described in detail in the following chapters.

## *Interaction with "Intellect" system*

Interaction of introduced "DLK" objects with standard "Intellect" system handlers (see Fig. 2) is implemented on the basis of two mechanisms, that is object events and object reactions.

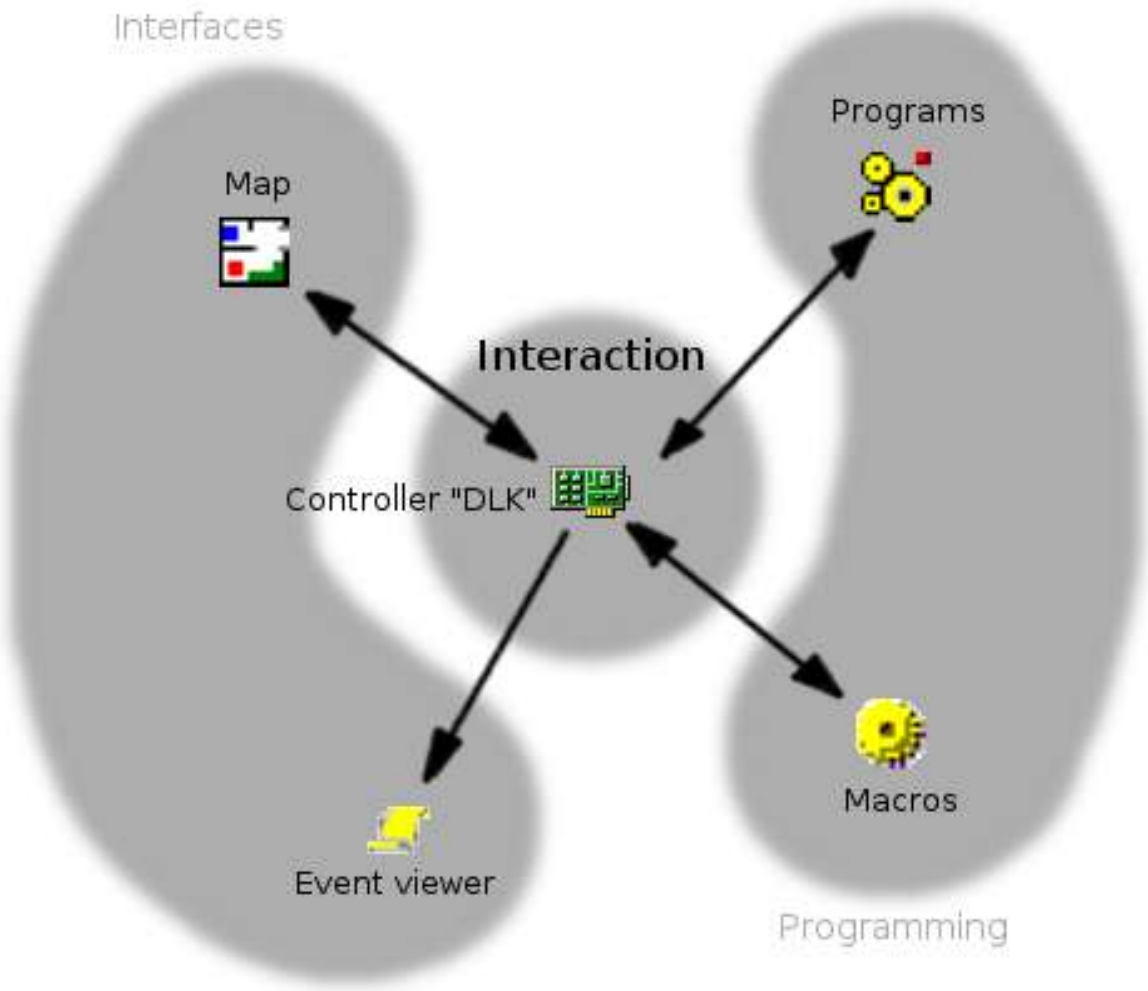



*Fig. 2 Common structure of DLK modules integration - Intercaction*

When significant access event arises, corresponding object generates event that informs about this event the core of “Intellect” system, and all other event handlers through the core. For example, when door sensor is broken, door associated with the sensor generates “Door open” event. If necessary some parameters are specified in event message, for example, when card is passed to reader “DLK door” object, associated with the reader, may generate event message: “Access granted”, object code = XXX, card code = XXXXXXX.

In case of necessity of feedback with hardware, event handler activates reaction for corresponding hardware object. For example, when operator gives command to open door, “Open door” reaction activates for corresponding door object; at command to upload control panel, “Upload control panel” reaction is activated.

To receive complete list of events and reactions, supported by an object, use **Tools\ddi.exe** utility, which is supplied with “Intellect” system. Load it by means of **eng.ddi** file from system root folder and refer to “Events” and “Reactions” tabs in properties of interesting object.

## Interfaces tab

Here “Screens” or user interfaces are adjusted. Create new screen and associate it with computer, where the screen will be available. After that it is possible to create interface windows as screen child objects.

**NOTE:** Dimensions and position data of windows is specified in **PERCENTS** of screen dimensions (not in pixels), that is why values exceeding one hundred have no sense.

“Map” interface serves for visual presentation of guarded territory topology and displaying of objects events in graphical form. Icons for hardware objects may be reflected on a map after creation of rooms’ image. When events arise, hardware icons may change signaling about events. Object reactions are available in its context menu, and operator may immediately react to events.

“Event log” interface reflects events in table form indicating complete information about events that is source, time, event name and additional parameters in chronological way. This interface has no feedback mechanism with operator.

## Programming tab

Here it is possible to create software-based event handlers, which do not require operator interference.
“Macrocommand” object serves for assignment of simple system reactions on events. Conditions of reaction launching are set by “Events” list; all reactions, indicated in “Actions” list, are executed on meeting any specified condition.
Macrocommand object may be presented on a map and launched from it by hand. Besides, macrocommand may be launched from main menu of “Intellect” system, where correspondent item emerges after macrocommant creation.

“Program” object implements assignment of more complicated system reactions on events. Reaction handlers are written in script form and have advanced facilities as compared to macrocommand. Each handler is designed as catcher function, its name specifies its essence and parameters specify its additional conditions. Body of such function specifies set of commands-reactions on event.

For detailed information on creation and adjustment of standard access objects of “Intellect” system and setting of event handlers, refer to the system manuals, which is located in “Help” subfolder of “Intellect” system root folder, file name is **Intellect_eng.chm** in Windows Compiled HTML format.

# Creating and adjusting "Golden Gate" access control system

To create new object of "Golden Gate" access control system choose necessary computer in "Hardware" tab and in "Create object" floating menu choose ACS "Golden Gate" (see Fig. 3).

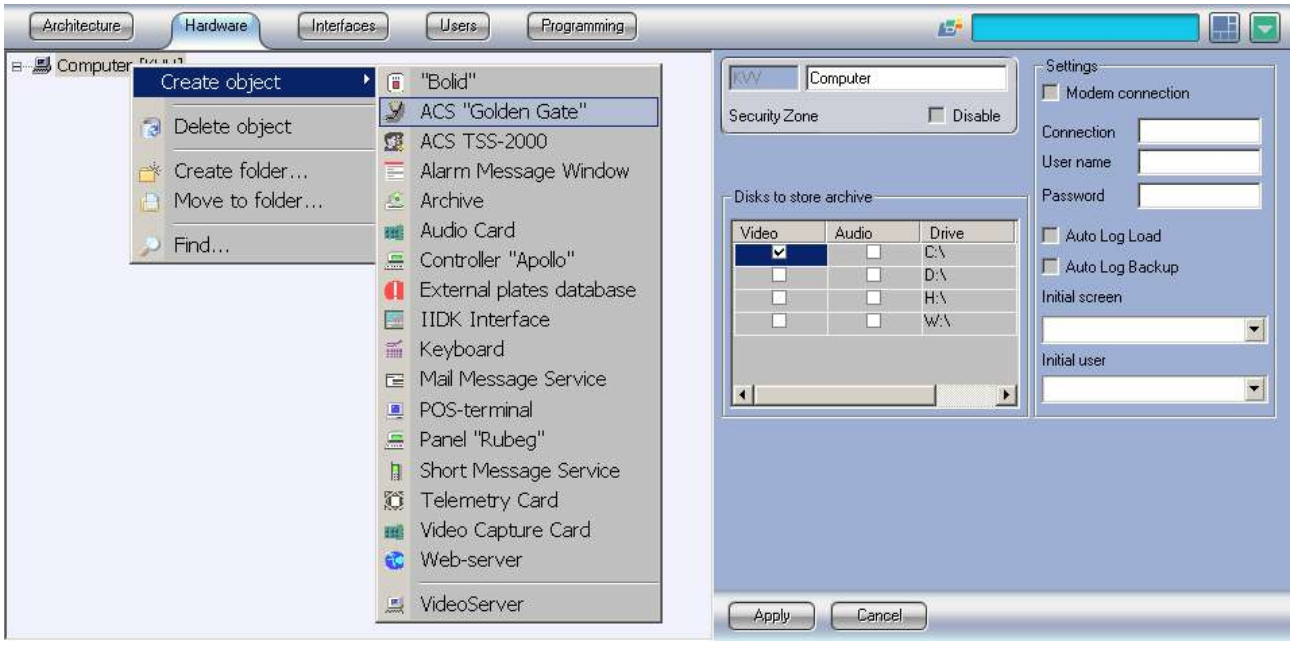



*Fig. 3 Creating "Golden Gate" access control system*

This object is associated with RS-485 bus and corresponding COM-port.

In "Golden Gate" ACS settings (see Fig. 4) choose COM-port that has LNET interface converter connected. Drop-down list contains only ports available in operating system.

Further, specify compatibility parameters used. These parameters will influence the on behaviour of all subordinate objects.

**Type of reader** determines type of cards, which are used on the object. Wiegand42 specifies use of 5-byte card codes, Wiegand26 – of 3-byte card codes.

**NOTE**: This parameter must be agreed with hardware settings of readers, used on the object. By default, readers of Integrated Technical Vision manufacture operate in Wiegand42 mode. If it is supposed to use Wiegand 26 interface, do not forget to indicate it when ordering readers.

**Scale of notation** determines in Users' Settings of "Intellect" software, in which system codes of cards are specified, either decimal or hexadecimal. This parameter is provided for purpose of compatibility with existing databases and facilitation of manual codes entering in cases when codes are marked on cards.

**Facility code length** specifies quantity of bytes destined for "Facility code" field in users settings of "Intellect" system. This code borrows bytes of full card code, accordingly shortening its length. Card code length is calculated as complete code length with subtracted facility code. Allowable range is from 0 up to (complete_code_length - 1). Complete code length is 3 bytes for Wiegand26 and 5 bytes for Wiegand42. If facility code length is 0, then any specified facility code is ignored.

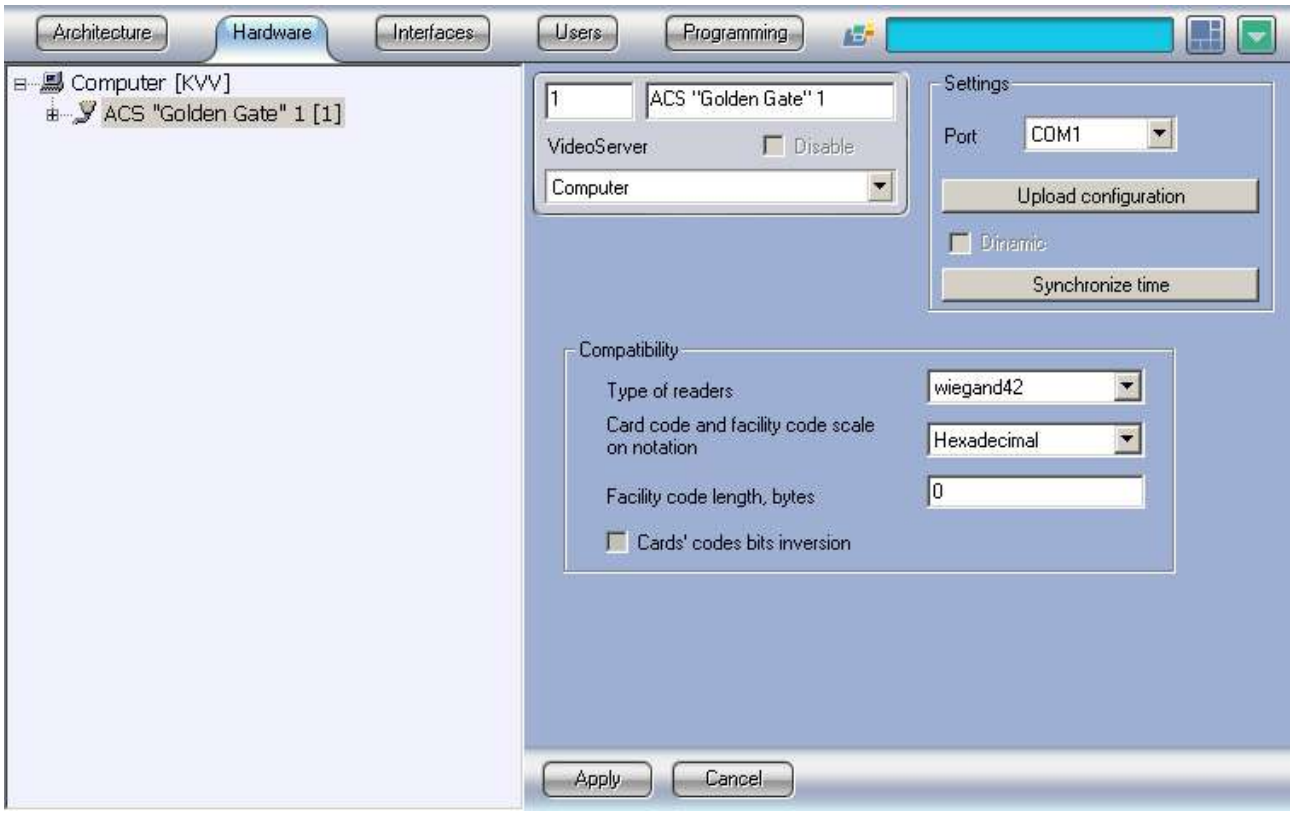



*Fig. 4 Adjusting "Golden Gate" access control system*

**NOTE:** All users' cards must have common format, equal facility code length and card code length, common scale of notation. Use of miscellaneous scales (for example, simultaneous use of 3-byte and 5-byte readers) is complicated by fundamentally different content of necessary data and different approach in providing cards' codes with uniqueness (unique 5-byte cards may prove to be identical within 3 bytes).
Parameter of **Cards' codes bits inversion** is represented for the purpose of compatibility with control panels of other vendors. Mark this parameter, when using control panel with connection circuitry of reader signal line, inverse to the circuitry adopted by Integrated Technical Vision company. In this connection, bits of cards codes, received from control panels, will be inverted by software when transmitted to Intellect.

In addition, in "DLK" ACS settings window there are widgets typical for ACS, represented in "Intellect system": "Update Configuration" button realizes uploading of all control panels, filial to corresponding "DLK" ACS; "Synchronize time" button accomplishes synchronization of time according to PC reference clock for these control panels.

# Adding and adjusting «DLK» controller

To add new control panel choose necessary point of “Golden Gate” ACS pop-up menu (see Fig. 5). This object is associated with particular control panel on RS-485 bus.

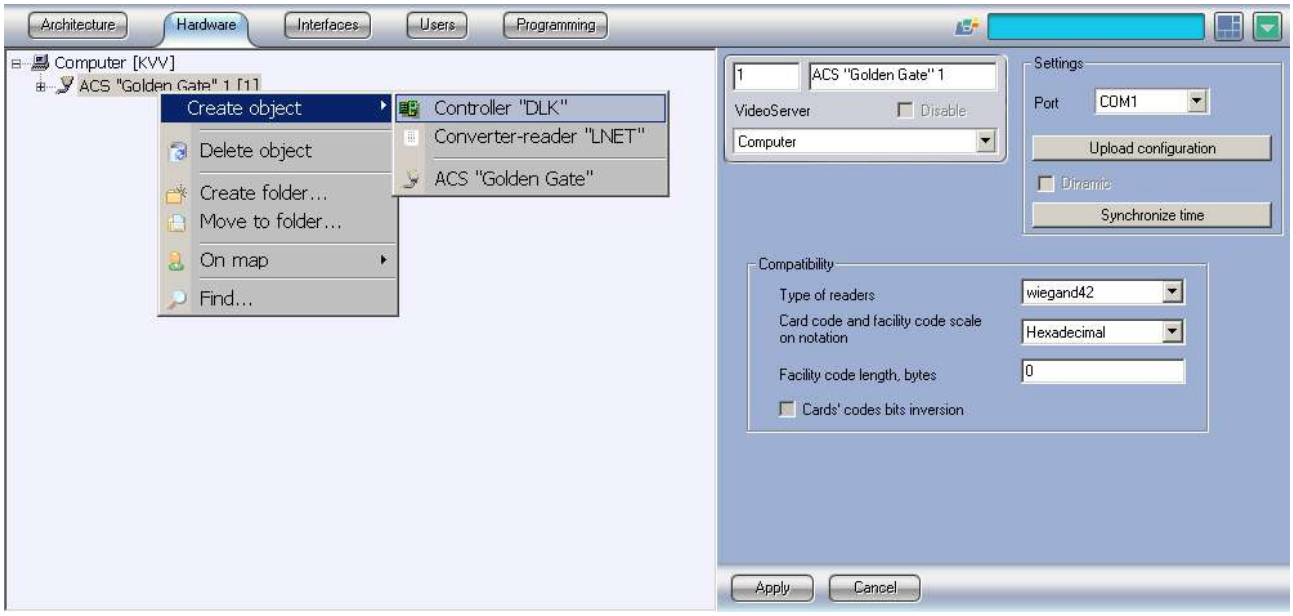



*Fig. 5 Adding «DLK» controller*

In “Address” line of control panel’ settings (see Fig. 6) specify ID of control panel. It is set on the control panel physically via jumpers (for example, in F16, F18 control panels) or programmed from the keypad (for example, DLK642 control panel) – refer to control panel manual for detailed instructions.

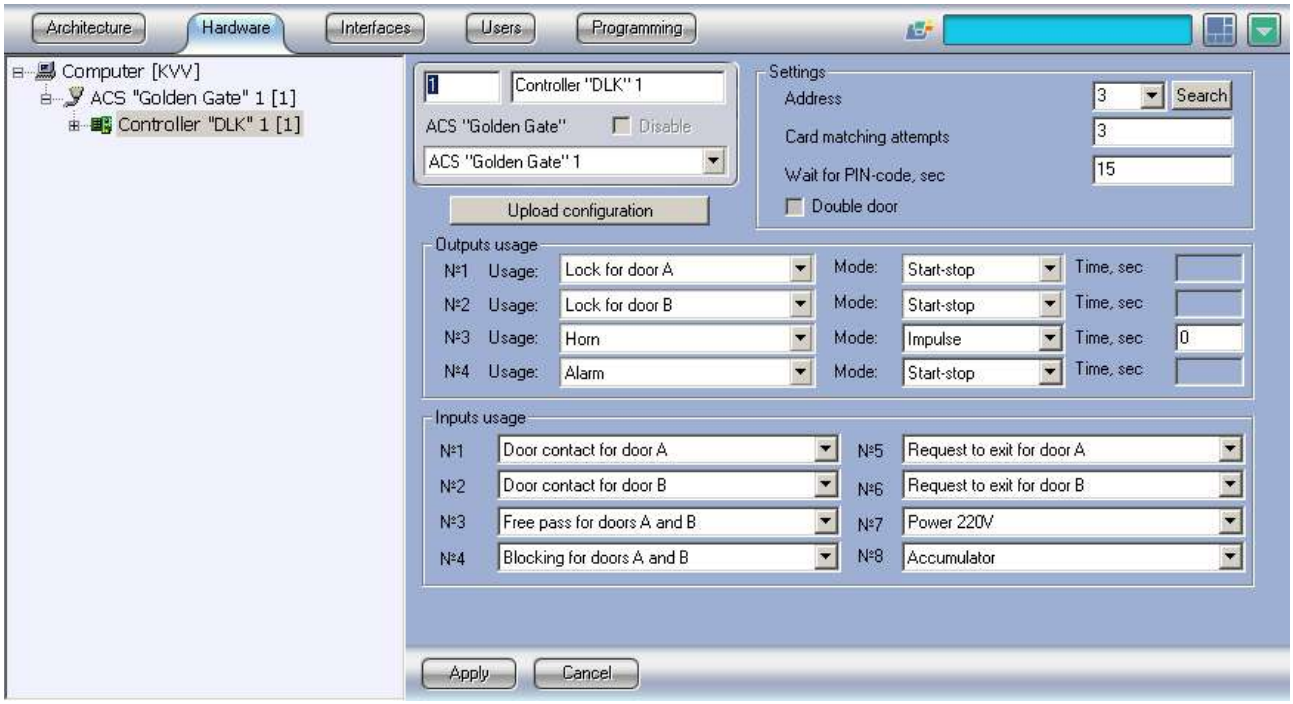



*Fig. 6 Adjusting «DLK» controller*

**NOTE**: Hardware-based ID of all control panels is set to 0 value at sale. If there are more than one control panel on RS-485 bus, impact of addresses emerges and system will NOT work correctly. Prior to connection, it is necessary to provide unique hardware-based address of each control panel within one bus (these will be all control panels of one "Golden Gate" ACS in "Intellect" system).

**NOTE:** If address is not set properly (it is set to 0 by default when creating control panel), the control panel will not be found. There emerges "Impossible to find control panel" event in events' report window. It is recommended to choose number in a list automatically generated during search of available control panels. To activate search process, press "Search" button to the right of address field. Search process is displayed by corresponding message box (see Fig. 7). All found control panels are added to drop-down list of control panels' address.

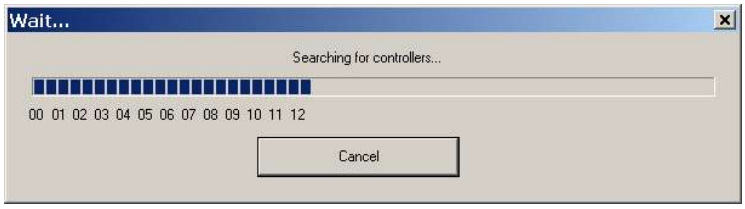



*Fig. 7 Dialog of quering for available controllers*

**Card matching attempts** – is a peak amount of unknown cards presented to reader without alarm activation. If peak amount is exceeded corresponding door goes into alarm. Presentation of enrolled card clears the counter of card matching attempts. If the amount is set to 0, card matching attempts will not be traced.

**Wait for PIN-code** – if there exists "PIN-code" field in user settings, reader will wait after card enrollment for PIN-code entering to confirm access identity. If "Wait for PIN-code" field is set to 0 seconds, control panel will wait for PIN-code entering without time limit.

**NOTE**: this time parameter should be long enough for any user, having access rights, to have time to enter PIN-code. Otherwise, time will elapse before PIN-code entering, control panel will deny access and it will be necessary to pass card to reader and enter PIN code once again.

**Double door** flag indicates that both access points (A and B) present one door with access to either sides or double-sided turnstile (or two access points logically emulate double door). This parameter influences antipassback function (antipassback is activated in case of double-sided door only), and procedure of door state change (states of blocking, fire or alarm arise on double door synchronously).

Output usage group allows configuring of used output type, operation modes and time of engagement.

**Output usage** determines way of outputs activation by control panel. "Lock" output is activated at door open, "Alarm" output – at alarm activation, "Horn" output – at alarm activation except for tamper violation.

**Mode** controls hardware operating mode of output. Available types of modes are "**Start-stop**", "**Impulse**" and "**Triggered**".
"**Start-stop**" mode is set for electromechanical locks of "latch" type and electromechanical locks. In that mode lock changes its state at energizing and deenergizing, for example, it is closed at being energized and open at deenergizing.
"**Impulse**" mode is applied to electromechanical locks or bells, lock is opened or bell activated by voltage impulse.

“**Triggered**” mode is used for specific locks that have two different signals for mode change, for example, “Arm system” and “Disarm system”, which alternate each other.

For detailed information on necessary mode type turn to user manual of device connected.

**Time** value is used only for impulse mode of output. It specifies length of impulse for door opening in seconds. When time is set to 0, control panel will produce short impulse about 200msec.

**NOTE**: time should not be too long, since lock may be overheated by energy consumption at very long impulse supplied. It is recommended to use minimal time value enough for lock engagement.

Input usage specifies information that is transmitted to control panel and defines response to event emerged.
”**Not specified**” input designates to control panel to ignore input events.
”**Door contact**” indicates that this input is connected to door contact sensor and events received from this input will be treated correspondingly. In case of double-sided door, sensor may be common for both door A and door B.
”**Request to exit**” indicates that input is used as request to exit button for corresponding door.
”**Blocking for door**” indicates that the input is connected to door blocking button. If contact is used as common for both door A and door B, both doors are blocked at blocking button pressing.
”**Accumulator**” and “**Power 220V**” indicate that input is used for control of accumulator unit state or power state correspondingly. When state of inputs is changed control panel produces corresponding message (Good/Lost).
”**Door contact and RTE button**” enables use of combined sensor. For detailed information, refer to control panel manual.

# Adding and adjusting «DLK» door

To add a door subordinate to available DLK control panel, choose corresponding item of “DLK” controller pop-up menu (see Fig. 8). This object is associated with one of two readers available in control panel hardware.

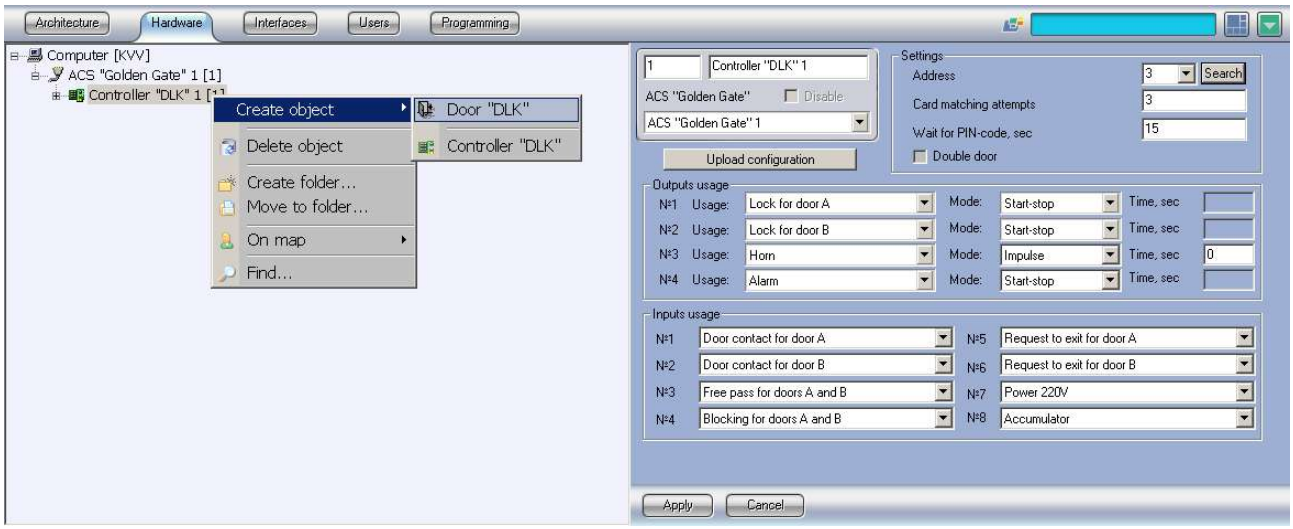



*Fig. 8 Adding «DLK» door*

Create two subordinate door-objects as filial to control panel (see Fig. 9). Specify type “A” for one door and type “B” for the other. By that, correspondence is set up between adjustable door-object, outputs and inputs, which are specified during control panel adjustment. Create one door if one access point is unused.

Control panels controlled by modules have in their hardware and intrinsic software the constant number of supervised access points – that is two. They are marked correspondingly A and B. When operating “Intellect” system user may abstract himself from this fact since it is masked in intrinsic implementation. To control bigger amount of doors, use appropriate number of control panels.

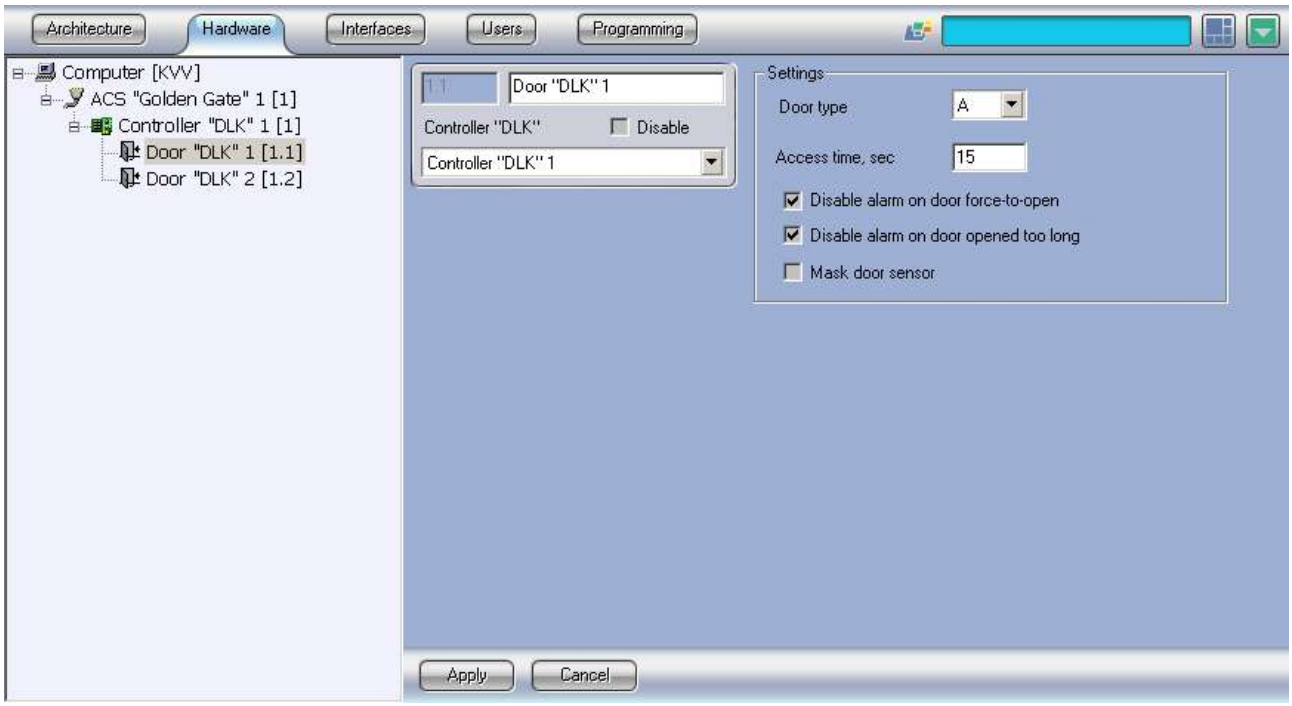



*Fig. 9 Adjusting «DLK» door*

**NOTE**: If only one type of door is added, control panel will not be able to associate event emerged for the other door type with any door available. Message “Control panel is not configured, unknown door event” will be generated. If more than one door of same type is connected to control panel, the control panel will refuse to download settings since door settings are replicated.

**Access time** parameter indicates maximal time for door being open without arising alarm state. When access time is exceeded reader switches to alarm state and message, “Door open too long” emerges.

**NOTE**: this time should be long enough for any user with access rights to have time to pass through access points within time limits. Refer also to “Disable alarm on door open too long” point.

**Disable alarm on door force-to-open** parameter prevents switching of control panel to alarm state at unauthorized door sensor break.

**NOTE**: it is NOT recommended to mark this parameter without extreme necessity. Marking of this parameter disables control of real door break event. It may be marked temporarily in case of door sensor breakage or in case of closed-door travel until trouble-shooting.

**Disable alarm on door opened too long** parameter prevents switching of control panel to alarm state on access time expiry. At the same time, “Door opened too long” message is generated.

**NOTE**: it is recommended to mark this parameter only in case of nonrigourous access policy on inside doors of supervised objects.

**Mask door sensor** parameter indicates “quiet” door behaviour, masking less informative access events. When “Mask door sensor” field is marked “Door opened too long” message is not transmitted to event log.

**NOTE**: It is recommended to mark this parameter in case of nonrigourous access policy on inside doors of supervised objects.

# Adding and adjusting LNET converter

To add LNET converter object subordinate to “Golden Gate” ACS choose corresponding item of ACS “Golden Gate” pop-up menu (see Fig. 10). It is associated with converter-reader “LNET”, by means of which RS-485 bus is connected to PC communication port.

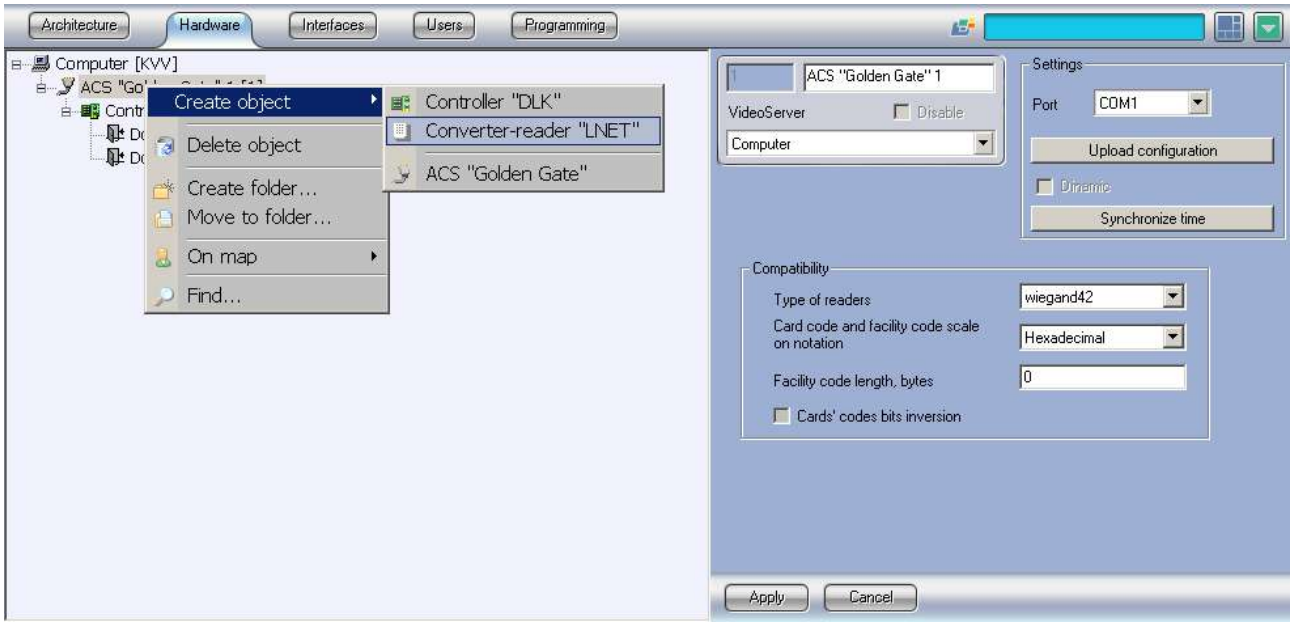



*Fig. 10 Adding LNET converter*

Converter-reader LNET has several functions. First, it functions as converter of RS-485→RS-232, which allows to manage control panels from computer. Second, it has built-in reader that helps to automate cards enrollment on operator workplace since reader is situated in immediate vicinity to PC. Last, it functions as hardware serial key protecting integration modules from being copied.

Error in modue DLK.run
Convertor LNET not found for port COM1 (object's ID '1') which acts as a hardware serial key. The most of controller facilities will be blocked, refer to documentation for detailed info
OK

*Fig. 11 Warning message in case of specially programmed LNET converter absence*

There is only one parameter possible in LNET settings that is “Inquire reader” (see Fig. 12). When “Inquiry reader” box is marked, reader of converter is periodically inquired about presence of passed card. In case of card presence corresponding message is generated in “Intellect” system. When “Inquiry reader” box is not marked, only reader will process passed cards, corresponding messages will not be generated and cards will be ignored.

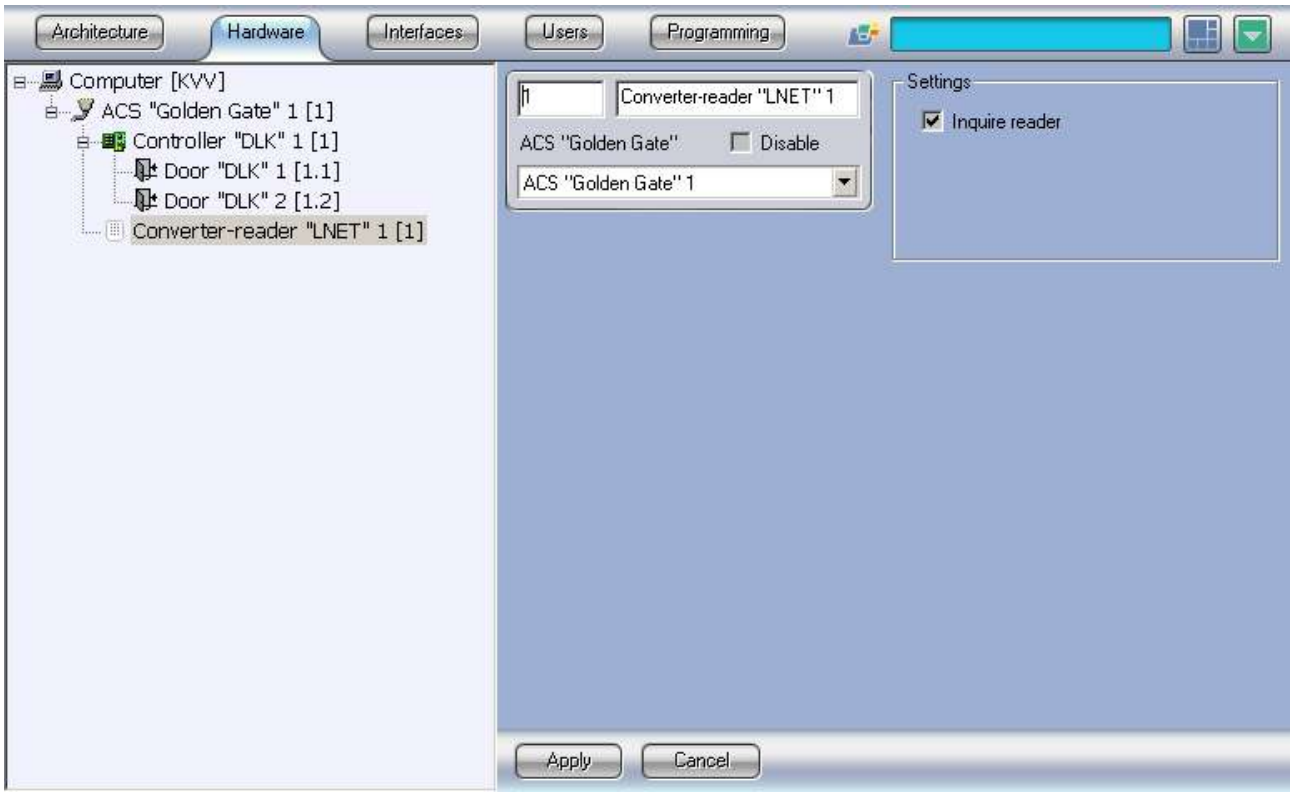



*Fig. 12 Adjusting LNET converter*

**NOTE**: presence of LNET converter, specially programmed for operation with "Intellect" system is **obligatory** for providing of full functionality of software. In case that LNET converter is not programmed for operation with Intellect system, software operates in "DEMO-mode" (see Fig. 11). Basic functionality of modules, namely uploading of control panels and messages generating, will be blocked for corresponding COM-port. Connect LNET device supplied for joint operation with "Intellect" system to **EACH** used port and restart the system.

Presence of "LNET converter" object in hardware list of "Intellect" system is optional for full system functionality.

# Using map for «DLK» ACS

Convenient way of monitoring is supervision of arising events directly on a map (see Fig. 13). For details on map creation and marking of map objects, refer to corresponding chapter of this manual.

ACS "Golden Gate" object drawn on a map is used to set generic commands to all control panels on one bus. Pop-up menu of this object has the following operations available:
**Synchronize time** – commands to all filial controllers to synchronize time according to PC reference clock. This command must be started periodically to prevent real time clock deviation. Typical deviation is 1-2 seconds per 24-hours. For precise information on allowable rate of real-time clock desynchronization, refer to control panel manual.

**Upload all controllers** - allows transmitting configuration for all filial control panels. "Controller DLK" object presents real location of ACS hardware. Exclamation marks may accompany controller icon. Yellow exclamation mark signifies alarm state, red exclamation mark – loss of connection to control panel. Control panel uploading is represented by bright green arrow.

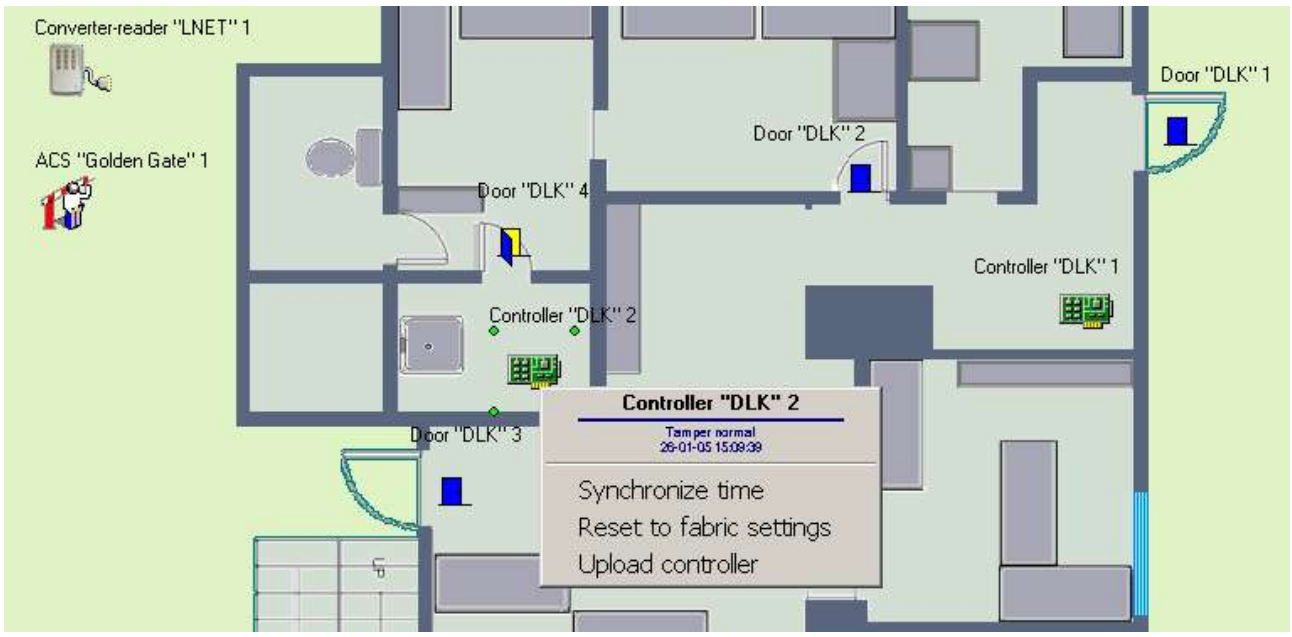



*Fig. 13 Working with map*

The following commands are available for controller “DLK” object:
**Synchronize time** – synchronize time according to PC reference clock for this control panel.

**Upload controller** – transmit configuration for this control panel.

**Reset to fabric settings** – default settings are specified for control panel. For details on default settings refer to control panel manual.

Door “DLK” object represents real location of door, with which this object is associated. Door icon reflects door state (open/closed or norm/attention).

The following commands are available for door “DLK” object:
**Open door** – commands to control panel to grant access through the door. Door lock will be open.

**To NORM/BLOCKED/FREE PASS mode** – changes door state correspondingly to command.

# Indication of map objects state

State of some objects is indicated directly on a map. Notation conventions are presented below. Some object states may be combined independently of one another, for example states of control panel “Tamper” and “220V power loss”. Some states on the contrary exclude all other, for example “Connection loss”.

ACS «Golden Gate» object
No state

«Controller DLK» object
Stand-by

«Controller DLK» object
Tamper alarm

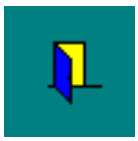
«Controller DLK» object
Alarm. The state arises when events of unconfigured door emerge or at break/shortage of user zone (parameter not available in “Intellect” system)

«Controller DLK» object
220V power low or absent

«Controller DLK» object
Accumulator discharged or absent

«Controller DLK» object
Control panel is being uploaded configuration

«Controller DLK» object
Connection to control panel lost



«Door DLK» object
Door open

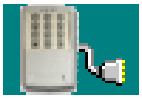
«Door DLK» object
Door closed

«Door DLK» object
Door is in Blocked mode, access is granted only to security service (parameter not available in “Intellect” system)

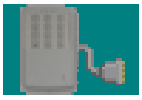
«Door DLK» object
Door is in Free Pass mode (or Fire Alarm mode), Lock does not close

«Door DLK» object
Alarm. The state arises at presentation of lost card, door break (alternative parameter of door settings), at door open too long (alternative parameter of door settings), at card matching attempt (alternative parameter of control panel settings)

«Door DLK» object
Unknown state of door (Connection to control panel is lost)



«Converter LNET» object
Stand-by mode



«Converter LNET» object
Connection to control panel is lost

# Implementation features

1. Time intervals with week cycle are NOT implemented since Intellect system still does not support this feature.

2. It is impossible to set several time zones for one door in access levels.
   For example, Access level 1: Door A – always + Door B - never
   Avoid such clashes during configuration.

3. Operation of intellectual merge of time slots is NOT implemented:
   For example, Time zone 1: 09:00 - 14:00 and 13:00 - 19:00 could be merged to save control panel memory.

4. Length of facility-code should be the same for all users. Additionally you have to specify this length in compatibility settings of parent ACS “Golden Gate”.

5. Maximal card code depends on type of reader used. It makes up 10 hexadecimal digits (lower case) for Wiegand42 and 6 hexadecimal digits for Wiegand26. In decimal system of codes’ recording maximal code is $256^5 - 1$ for Wiegand42 and $256^3 - 1$ for Wiegand26. When facility code is used, bits are borrowed from card code and maximal code decreases correspondingly.

6. Maximal length of PIN-code makes up six decimal digits. Code itself may be shorter.

7. Some values are limited in quantity (usually up to 255), which is due to hardware constraints. If limited number is exceeded, configuration cannot be uploaded to control panel. Quantity of cards is limited by control panel EEPROM memory. Maximal number of cards for DLK642 control panel is 1024, for F16 and F18 – 4096.

# When anything goes wrong

1. Read this manual once again.

2. Verify accuracy of control panel connection, presence of power and grounding.

3. When new configuration is uploaded to control panel, the panel requires some time (about 3 seconds) after message “Operation in new mode” to recalculate schedule. Control panel may incorrectly react to card passed during this period.

4. If the above advices do not help, consult to developer. We will be glad to receive any help in module debugging on
   support@itvsystems.com.ua
   Please, describe in details bug matter and conditions. If program generates message, record it word-for word.